

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
12 August 2004 (12.08.2004)

PCT

(10) International Publication Number
WO 2004/067250 A3

(51) International Patent Classification⁷: **B21D 39/04**

(74) Agent: **CROZIER, John, H.**; 1934 Huntington Turnpike,
Trumbull, CT 06611-5116 (US).

(21) International Application Number:
PCT/US2004/002225

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date: 28 January 2004 (28.01.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/353,615 29 January 2003 (29.01.2003) US

(71) Applicant (for all designated States except US): **ROSTRA TOOL-COMPANY** [US/US]; 30 East Industrial Road, Branford, CT 06405-2922 (US).

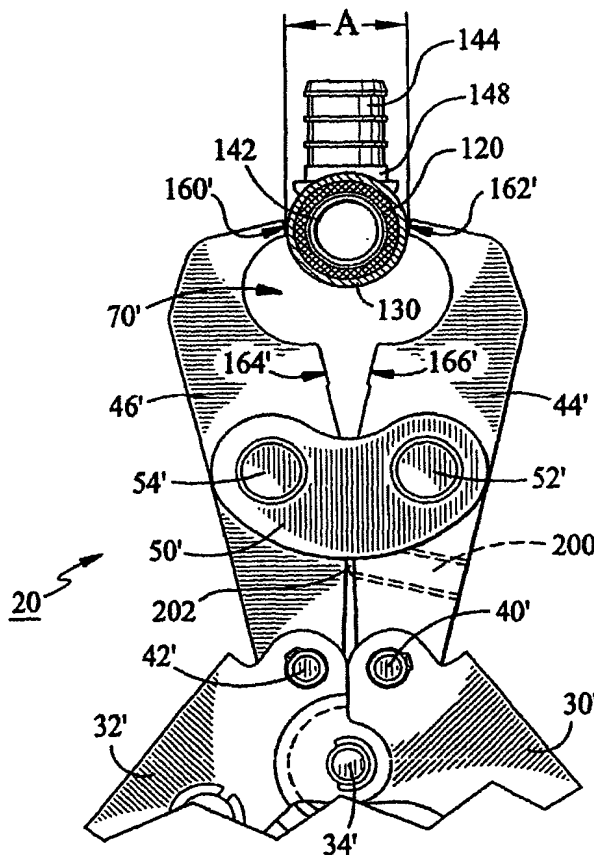
(72) Inventor; and

(75) Inventor/Applicant (for US only): **STEINER, Richard, A.** [US/US]; 71 Norwich Road, East Haddam, CT 06423 (US).

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK,

[Continued on next page]

(54) Title: **TOOTHLESS CRIMPING TOOL FOR PLASTIC PIPE CONNECTORS**



(57) Abstract: In a preferred embodiment, a crimping tool (20) to crimp a cylindrical ring (130) about cylindrical plastic pipe (120), including: first and second handles (30, 32) operative to open and close first and second jaws (44, 46), respectively, pivotally attached, respectively, to proximal ends of the first and second handles and to each other; and the first and second jaws being toothless and defining therebetween, when the first and second jaws are closed, a cylindrical opening (70), the cylindrical opening to crimp the cylindrical ring about the cylindrical plastic pipe, and to produce a tight seal between the cylindrical plastic pipe, and to produce a tight seal between the cylindrical plastic pipe and a cylindrical substrate over which the cylindrical plastic pipe is inserted. A method of using the crimping tool (20) is provided, as is using the crimping tool as a crimping gauge.



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:

28 October 2004

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/02225

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B21D 39/04
US CL : 72/409.19; 29/237, 517

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 72/409.19, 409.01; 29/237, 283.5, 517; 81/318, 326, 324

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|----------------------------|
| X | US 5,289,712 A (HAUGHIAN) 03 March 1994 (01.03.1994), see Figures 1 and 2. | 1-4 |
| Y | | 6-15 |
| X | US 3,688,553 A (DEMLER, Sr.) 05 September 1972, (05.09.1972), see Figures 9 and 11. | 1-4, 6-8, 10, 11 and 13-15 |
| | | 9 |
| X | US 256,525 A (WHITING) 18 April 1882, (18.04.1882), see Figures 1-4. | 1-4 |
| X | US 2,327,650 A (KLEIN) 24 August 1943 (24.08.1943), see Figure 2. | 1 |
| X | US 6,289,712 A (BEETZ et al.) 18 September 2001 (18.09.2001), see Figure 1 and sentence bridging columns 6 and 7. | 1-4 |
| Y | | 6-15 |
| A | US 2,064,129 A (TEMPLE, JR) 15 December 1936 (15.12.1936), see Figure 1. | 1-15 |



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search

27 July 2004 (27.07.2004)

Date of mailing of the international search report

13 SEP 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Daniel C Crane

Telephone No. 703-308-1078

Sheila H. Venev
Patent Specialist
Tech. Center 3700

INTERNATIONAL SEARCH REPORT

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A | US 2,102,325 A (KYLSTRA) 14 December 1937 (14.12.1937), see Figures 4-7. | 1-15 |
| A | US 2,861,489 A (BARNES) 25 November 1958 (25.11.1958), see Figures 1 and 3. | 1-15 |
| A | US 2,931,264 A (DALLMAN) 05 April 1960 (05.04.1960), see Figure 3. | 1-15 |
| A | US 3,859,837 A (BURROUGHS) 14 January 1975 (14.12.1975), see Figure 3. | 1-15 |
| A | US 4,116,037 A (HONEYCUTT) 26 September 1978 (26.09.1978), see Figure 3. | 1-15 |
| A | US 5,267,464 A (CLELAND) 07 December 1993 (07.12.1993), see Figure 2. | 1-15 |